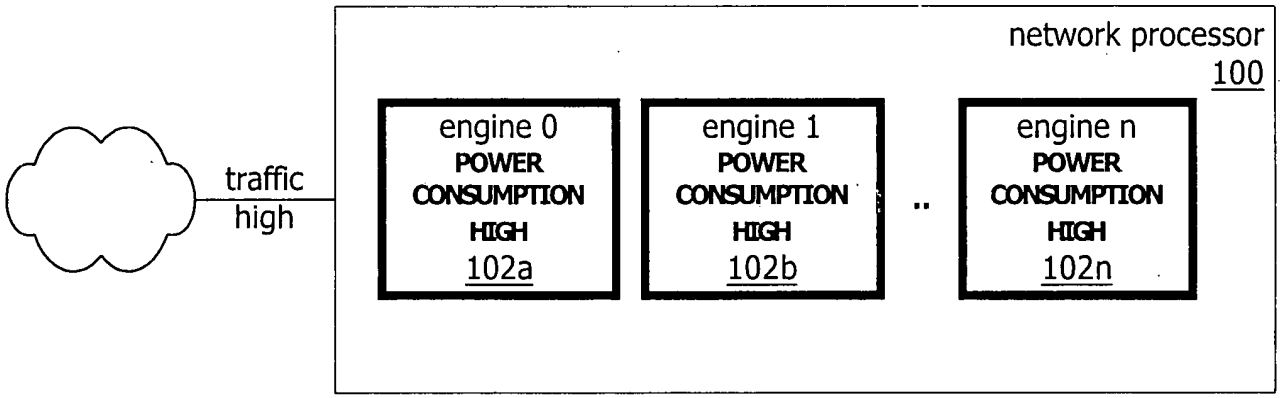
network processor
100
traffic
high
engine 0
POWER
CONSUMPTION
HIGH
102a
engine 1
POWER
CONSUMPTION
HIGH
102b
..
engine n
POWER
CONSUMPTION
HIGH
102n

FIG. 1A

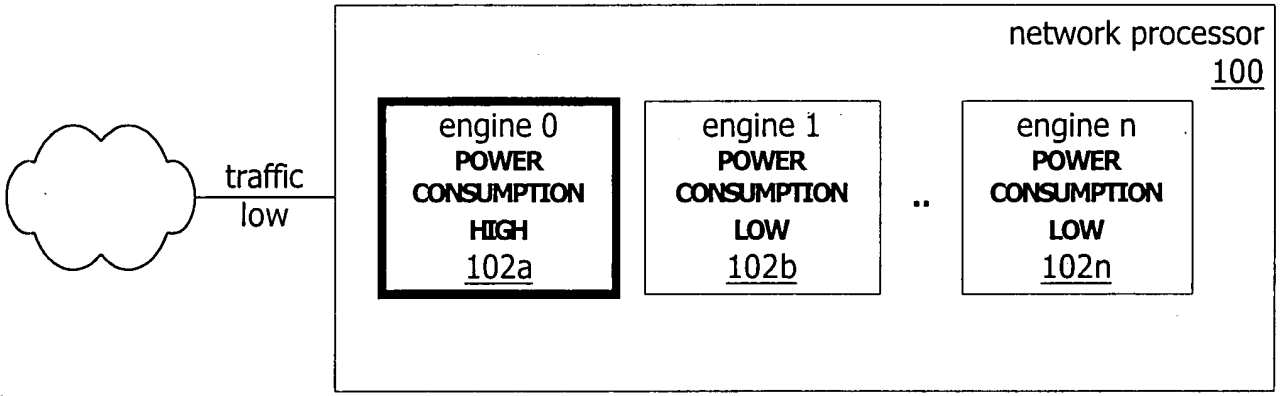
network processor
100
traffic
low
engine 0
POWER
CONSUMPTION
HIGH
102a
engine 1
POWER
CONSUMPTION
LOW
102b
..
engine n
POWER
CONSUMPTION
LOW
102n

FIG. 1B

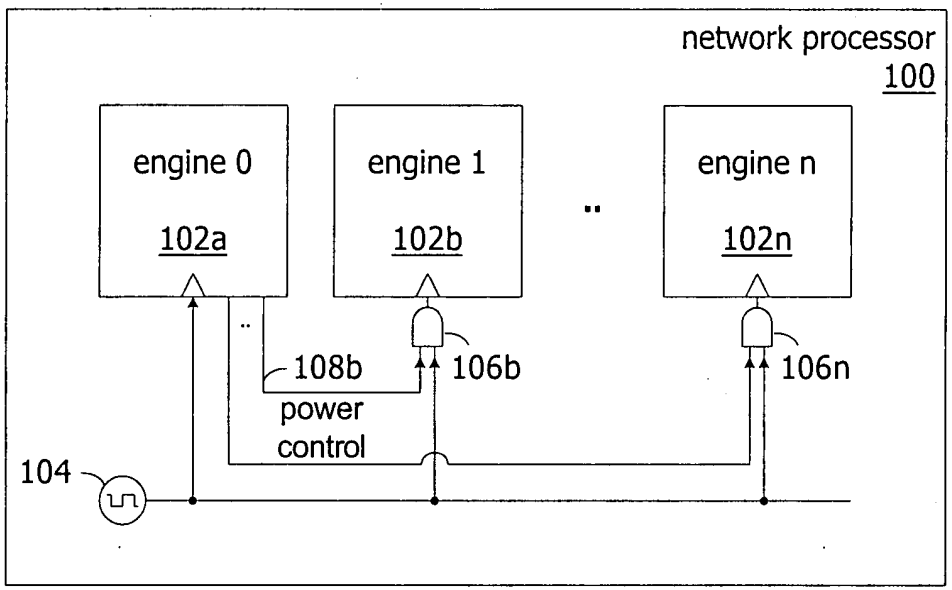
network processor
100
engine 0
102a
engine 1
102b
engine n
102n
108b
power
control
106b
106n
104

FIG. 2A

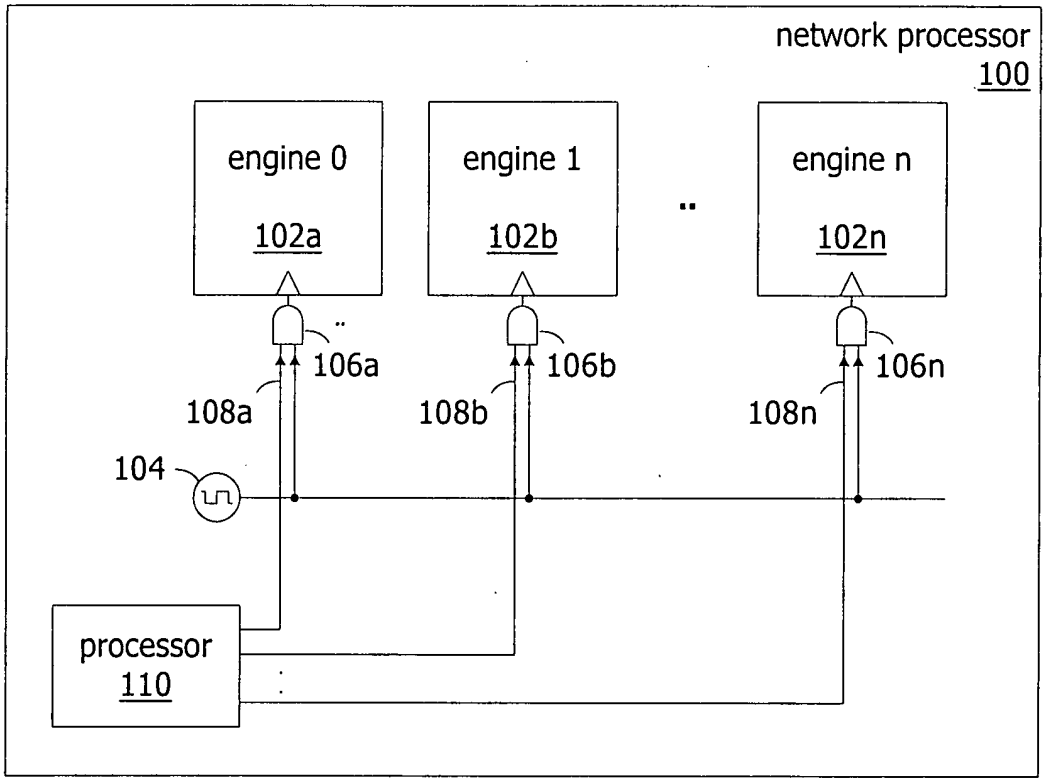
network processor
100
engine 0
102a
engine 1
102b
engine n
102n
106a
106b
106n
108a
108b
108n
104
processor
110

FIG. 2B

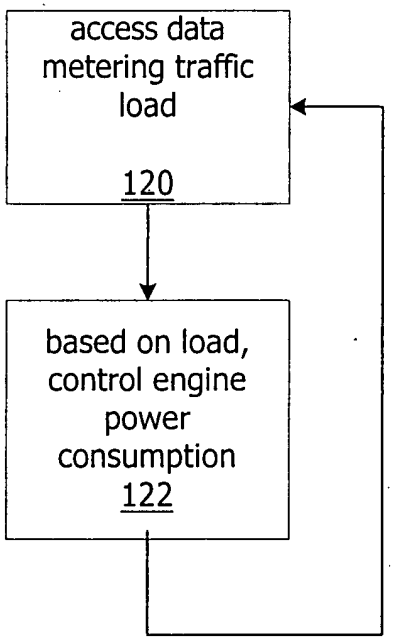
access data metering traffic load
120
based on load, control engine power consumption
122

FIG. 3

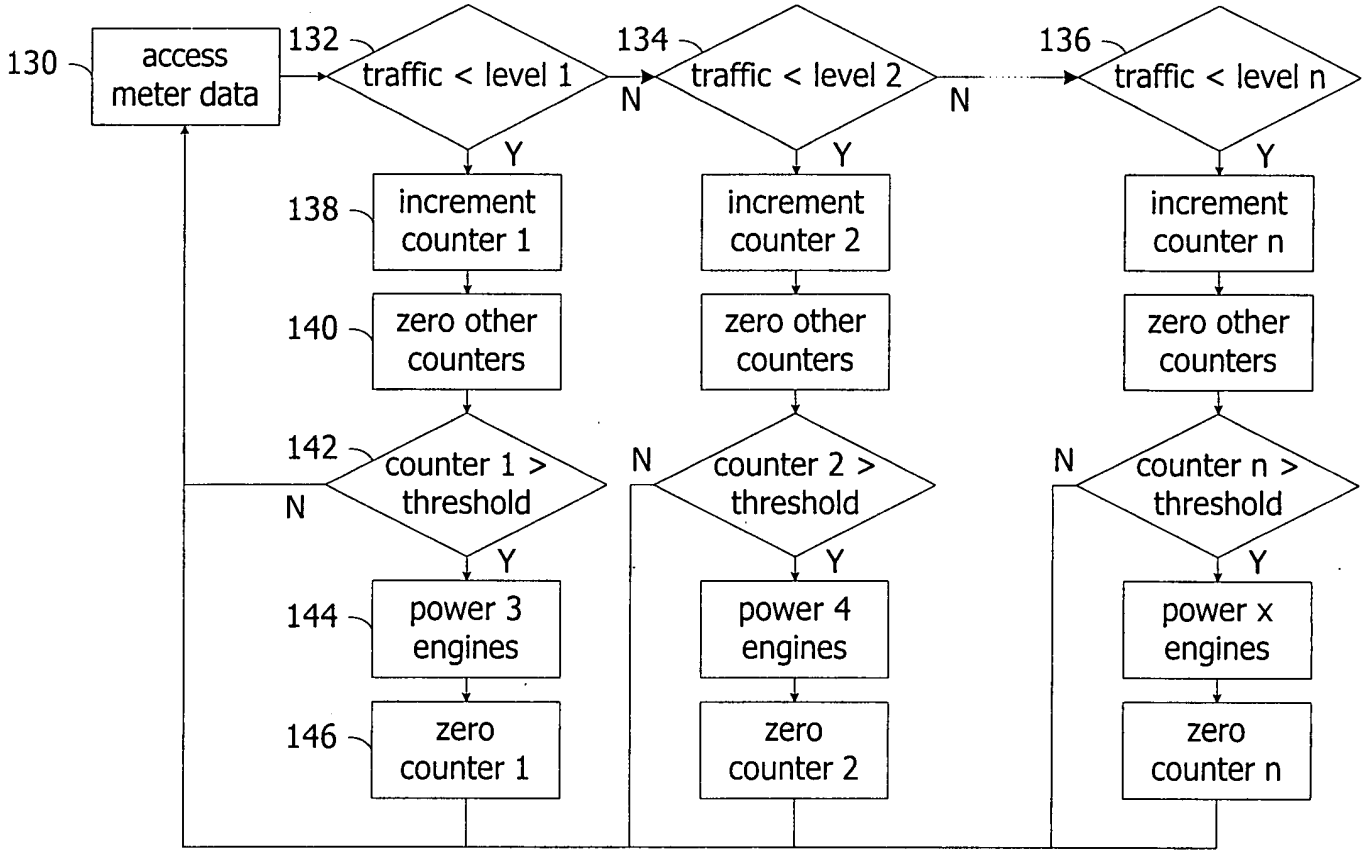
130
access meter data
132
traffic < level 1
134
traffic < level 2
136
traffic < level n
N
N
Y
Y
Y
138
increment counter 1
increment counter 2
increment counter n
140
zero other counters
zero other counters
zero other counters
142
counter 1 > threshold
counter 2 > threshold
counter n > threshold
N
N
N
Y
Y
Y
144
power 3 engines
power 4 engines
power x engines
146
zero counter 1
zero counter 2
zero counter n

FIG. 4

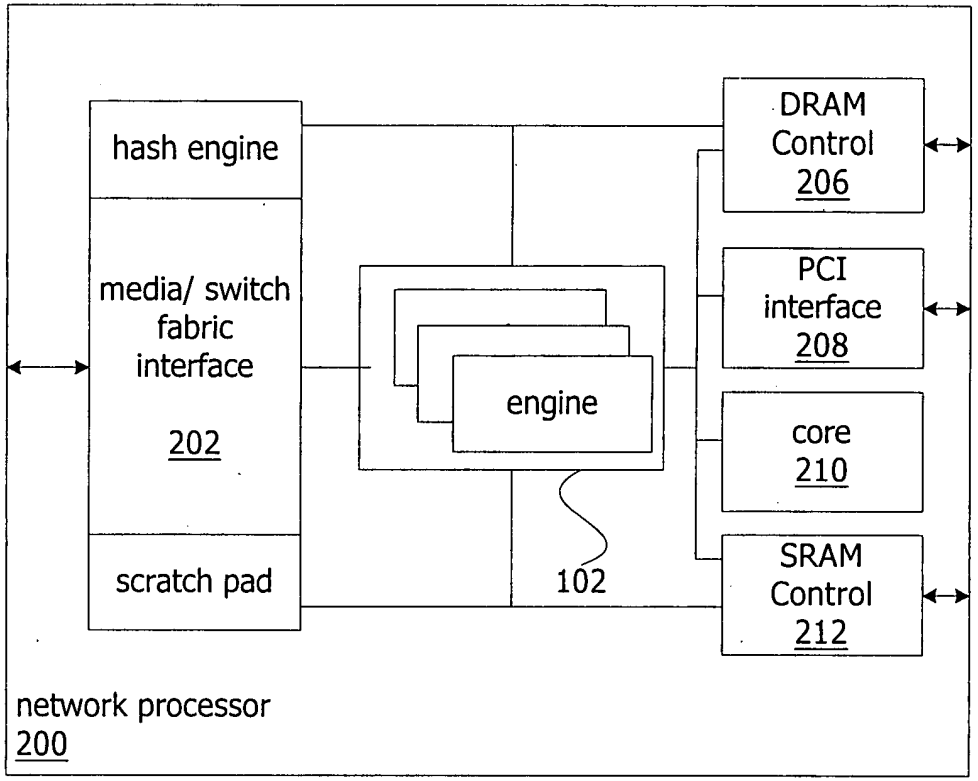
hash engine
media/ switch fabric interface
202
scratch pad
engine
102
DRAM Control
206
PCI interface
208
core
210
SRAM Control
212
network processor
200

FIG. 5

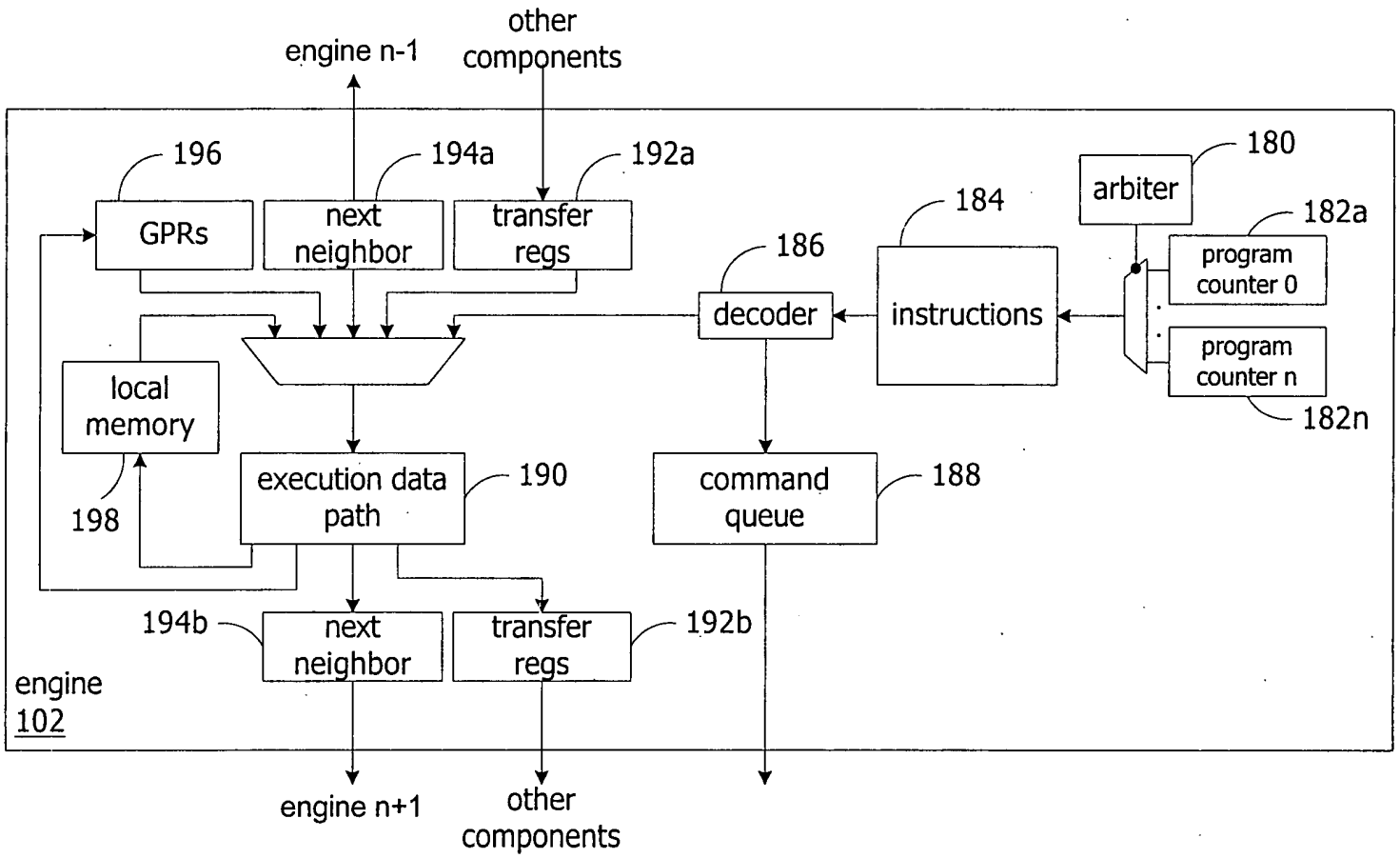
engine n-1
other components
196
194a
192a
180
arbiter
GPRs
next neighbor
transfer regs
184
182a
186
program counter 0
decoder
instructions
program counter n
182n
local memory
198
execution data path
190
command queue
188
194b
next neighbor
transfer regs
192b
engine 102
engine n+1
other components

FIG. 6

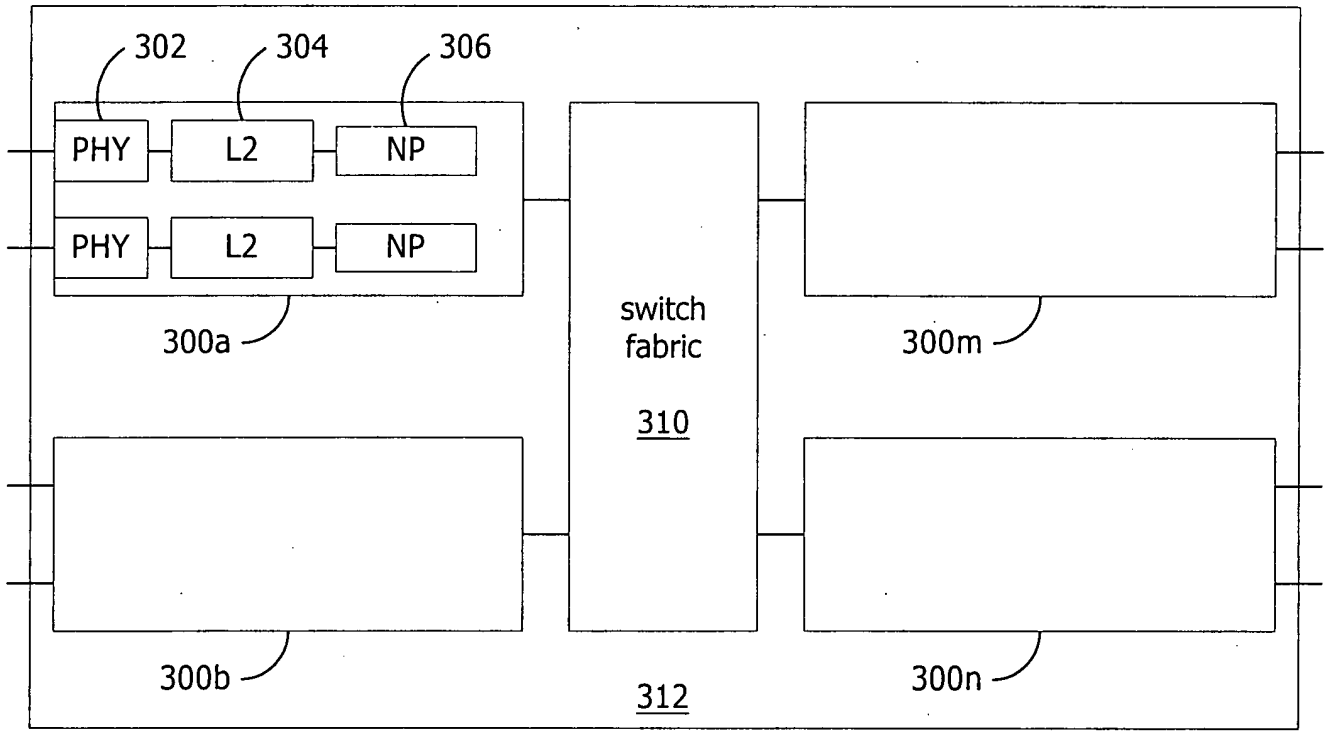
302
304
306
PHY
L2
NP
PHY
L2
NP
300a
switch
fabric
310
300m
300b
300n
312

FIG. 7